

## Beach aid

Dennis Medinis carries building blocks to wall being built along Duxbury Beach to prevent erosion near the public bathhouse.

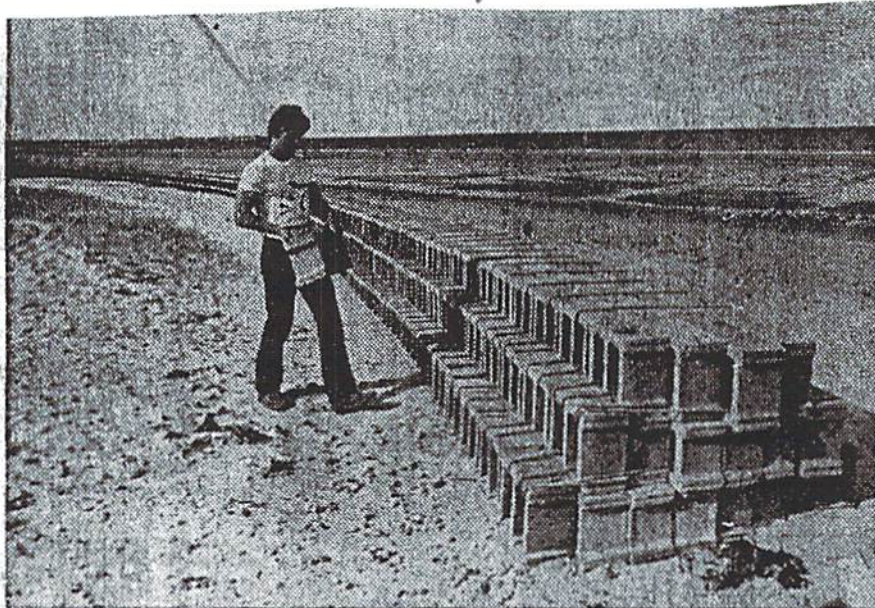


PHOTO BY ANGELA KALOVENTZOS

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# Wall of cinder blocks adds to Duxbury beach

By RICHARD LAMERE

Staff Writer

**DUXBURY** — This town is the first community in New England to try a new "sandgrabbing" operation designed to prevent beach erosion.

"Hopefully, we'll get a much improved beach," said Ralph Blakeman, veteran manager of Duxbury beach. "We suffer from northeast storms and this should be a big help."

Blakeman is pinning his hopes on a 200-foot wall of cinder blocks — tied together with steel rods — installed this week off the shoreline near the public bathhouse.

The process already has proven its effectiveness in fighting beach deterioration in other parts of the U.S. and Canada and is being introduced in Denmark, Brazil and eight other countries, officials said here yesterday.

**IT TOOK ONLY** two days for workmen to install 4000 10-by 12-inch cinder blocks this week, according to Ron Kidd of Marshfield, president of Sandgrabber, Inc. of Massachusetts, and Samuel Fair of Bay City, Mich., who invented the process.

"We went to the Duxbury Beach Ass'n and asked permission to put in a pilot project at no cost to the town to show people what we have and what it will do to stop erosion," explained Fair. "It'll now last forever and there'll be a new stretch of sandy beach."

The secret of the system is no secret at all, stressed Kidd.

"Instead of fighting Mother Nature with huge walls of steel or concrete, groins, jetties, breakers or revetments, the Sandgrabber process here — brings

the force of the waves through or over the block structure.

"This dissipates the energy of the waves and causes the water to drop its load of sand and gravel inward from the Sandgrabber. As the sand level rises inward, there is a tendency for the coarser sand and gravel to be deposited in front of the Sandgrabber, thus building the additional new beach."

**THE 3-FOOT-HIGH** line of blocks will be completely covered by sand in a matter of weeks. "It depends on the winds," noted Fair, pointing to 14 or 15 inches of sand that filled up the lower blocks on Tuesday alone.

Don Kidd, son of the firm's president, said, "This is a test to show people of Massachusetts what can be done to save beaches and preserve the shorelines."

"The Sandgrabber removes sand from the water. Everyone has been trying to figure out how to take sand out of the water, and this process does it."

Kidd said installation costs range from \$60 to \$100 per foot, depending on the locality and what equipment is needed. In some instances cranes and barges are needed, but the Duxbury project was relatively simple and the workmen carried the blocks from trucks and installed them on the beach quickly.

The Duxbury pilot project is costing Sandgrabber Inc. \$13,000.

"It's going to lift the beach up 3 feet and it's going to block the sand from going back into the ocean," predicted Kidd. "It's a wall that contains the beach area and it works."



# The Barrier Beach At Duxbury

Barrier beaches are built from sand and gravel transported by waves from a sediment source. They typically begin as sand spits that grow out from and parallel to the shore. Barrier beaches become islands when their connection to the shore has been breached by storm waves. Barrier islands and beaches are usually long and narrow and may have low elevations barely above high tide level or may contain high dunes.

Seen in cross section from the open sea to land, barrier beaches are composed of 4 major

elements: a sand beach made up of an intertidal shoreface zone, a foreshore beach and a steep berm; dunes; a shallow sloping zone usually containing salt marsh; and a lagoon or salt pond separating the beach from the mainland. Ecosystem components that typically may be found are salt marsh, tidal flats, and sand dunes. On larger more developed barrier beaches stands of maritime forest can be found.

Major examples of barrier islands-beaches in Massachusetts include Duxbury Beach.

Barrier beach systems, like

sandy shores and dunes of the mainland are subjected to the erosional stresses of storm waves and winds. Because they are composed of materials that are easily eroded and transported by wave and littoral drift, their beach area and contours often change dramatically during and following stormy periods.

Washover is a very important event for the barrier island system. This occurs when heavy storms drive the sea across the island from foreshore to the marsh or lagoon. It is by this means that sand is carried up on and over the barrier above the high tide level. Washovers also carry sand from the barrier beach to the lagoon to create shoals and deltas. Where such washover deposits are placed on old salt marsh, dunes may form on them. Where deposits occur in the lagoon new salt marsh may form. While there is some loss of communities that are buried by the washover deposits, new communities arise to replace them and overall this process results in

the slow migration of the barrier beach system toward the mainland.

Major human stress factors on barrier beaches are much the same as those affecting beach and dune environments. Many of the State's important barrier beaches and islands have been publicly acquired and now receive protection from most destructive forms of human use. Plum Island and Monomoy Island are National Wildlife Refuges. The National Park Service owns Coast Guard Beach and Jeremy Point. Horse Neck Beach is owned by the State, and several important beaches such as Sandy Neck, and Nauset are town-owned and protected. Public control of these and others has provided for reductions in such destructive uses as indiscriminate vehicle travel, disturbance of bird nesting areas and excessive concentrations of recreation activities.

The coast from Marshfield south, around the inshore of the Cape to Provincetown and down the outer coast to Chatham is an extensive barrier area. It is an important natural and cultural resource system.

Major barrier beaches at Duxbury, Barnstable, Wellfleet, Eastham, and Orleans protect valuable tidal flats, marshes and salt pond. Glacial material is abundant and has given rise to many beaches and their resultant dune systems. Maritime forest covers large portions of the coastal landscape. Commercial and sport fishing remain active and the tidal flats offer clam.